

REMARKS

Upon entry of the present amendment, claims 1-10 and 14-17 will remain pending in the above-identified application and stand ready for further action on the merits.

In the instant amendment, claim 1 is amended, claims 11-13 are canceled and new claims 14-17 are added.

Claim 1 is instantly amended to remove hydrogen as a value for R¹ in formula (I).

New claims 14-16 find support in the original specification and also in prior claims 11-13 now canceled. However, unlike prior claims 11-13, newly added claims 14-16 are now written as proper method claims (instead of use claims). More specifically, new claims 14-15 are directed to a method of dispersing an inorganic solid, and new claim 16 is directed to a method of modifying a surface of an inorganic solid.

New claim 17 is directed to a surface modifier for an inorganic solid and finds support in the original specification, as well as in original claim 1.

Additionally, support for the 67 – 100,000 range found in claim 17 (*i.e.*, p is 67-100,000) occurs in Synthesis Example 7 of the instant application (see page 23 (lower limit)) and at page 10 of the application (upper limit).

As such, it is submitted that the instant amendments to the claims do not incorporate new matter into the application as originally filed. Accordingly, entry of the instant amendment and favorable action on the merits is earnestly solicited at present.

Claim Rejection under 35 USC § 112, Second Paragraph

Claims 10-13 stand rejected under 35 USC § 112, second paragraph, as not distinctly claiming the invention. Reconsideration and withdraw of the rejection is respectfully requested based on the following considerations.

In the instant amendment, claim 10 is amended to depend from claim 8 which provides proper antecedent basis for the recited “medium” found in claim 10.

Additionally, claims 11-13 are canceled herein, so that the rejection of prior claims 11-13 is now rendered moot.

Claim Rejection under 35 USC § 101

Claims 11-13 stand rejected under 35 USC § 101 as being directed to non-statutory subject matter. Claims 11-13 are canceled herein, so that the rejection of such claims is now rendered moot.

Claim Rejection under 35 USC § 102(b)

Claims 1, 2, 5, 6, and 8-13 stand rejected under 35 USC § 102(b) as being anticipated by **Kalopissis et al. US ‘719** (US 3,578,719).

Reconsideration and withdraw of the above rejection is respectfully requested based on the amendments made herein to the pending claims, and the following considerations.

Legal Standard for Determining Anticipation

“A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). “When

a claim covers several structures or compositions, either generically or as alternatives, the claim is deemed anticipated if any of the structures or compositions within the scope of the claim is known in the prior art.” *Brown v. 3M*, 265 F.3d 1349, 1351, 60 USPQ2d 1375, 1376 (Fed. Cir. 2001) “The identical invention must be shown in as complete detail as is contained in the ... claim.” *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). The elements must be arranged as required by the claim, but this is not an *ipsissimis verbis* test, i.e., identity of terminology is not required. *In re Bond*, 910 F.2d 831, 15 USPQ2d 1566 (Fed. Cir. 1990).

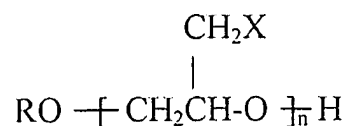
The Present Invention and Its Advantages

The polyether compound of the instant invention (*see claim 1*) is specified by a monomer of formula (i) and is useful as a surface-modifier of an inorganic solid, providing an unexpected advantage in dispersion of the treated inorganic solid in many kinds of solvent.

Additionally, it is noted that the polyether having a monomeric unit represented by the formula recited in newly added claim 17 provides the same advantages in dispersion of the treated inorganic solid in many kinds of solvent.

Distinction over the Cited Art

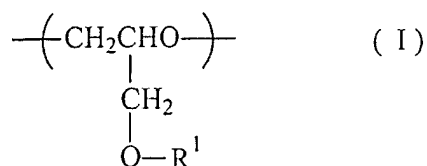
Kalopissis et al. US ‘719 shows a nonionic surfactant of the following formula.



Kalopissis et al. US '719 also shows at column 4, lines 51-52 a dispersing agent for dispersion of a solid powder in a non-aqueous liquid medium such as oil.

The Examiner has taken the position that the Kalopissis et al. US '719 reference discloses the claimed invention at column 1, line 61 to column 2, line 72; column 4, lines 31-73; and examples 20, 21 and 38.

However, in instantly amended claim 1, R¹ in formula (I) has been amended so as to avoid all overlap with Kalopissis et al. US '719. Specifically, as currently amended, formula (I) in claim 1 recites as follows:



R¹ represents an optionally substituted C₁₋₅₀ hydrocarbon, C₁₋₅₀ fluoroalkyl, C₆₋₅₀ fluoroaryl or Si₁₋₅₀ siloxysilylpropyl group; or a group represented by $-(\text{AO})_m\text{---R}^2$:

in which R² represents an optionally substituted C₁₋₄₂ hydrocarbon, C₁₋₄₂ fluoroalkyl, C₆₋₄₂ fluoroaryl or Si₁₋₄₀ siloxysilylpropyl group; A represents a C₂₋₃ alkylene group; m is a number selected from 1 to 100; and m×A's may be the same or different.

Accordingly, because the cited Kalopissis et al. US '719 reference does not teach or provide for each of the limitations of the claimed invention, it is incapable of anticipating the present invention as claimed, so that withdraw of the outstanding anticipation rejection based thereon is required at present.

For completeness, it is noted that newly added claim 17 while allowing R¹ in its monomer formula to be hydrogen, nonetheless also recites that “p is 67-100,000” which completely avoids all overlap with the disclosure of Kalopissis et al. US ‘719, since Kalopissis et al. at best only discloses a corresponding “n” number of 1 to 10 and/or 2 to 10 (*e.g.*, see column 1, lines 20-21; column 2, lines 21-22 and 55-56).

Claim Rejections under 35 USC § 103(a)

Claims 1 and 4 stand rejected under 35 USC § 103(a) as being unpatentable over Kalopissis et al. US ‘719 in view of Vysotskaya et al. (*Mechanics of Composite Materials*, Vol. 23, No. 4, July 1988, pp. 513-518).

Claims 1, 3 and 7 stand rejected under 35 USC § 103(a) as being unpatentable over Kalopissis et al. US ‘719 in view of Amanokura et al. (*Science and Industry*, Vol. 73, No. 3, pp. 114-119, 1999).

Reconsideration and withdraw of each of the above rejections is respectfully requested based on the amendments made herein to the pending claims, and the following considerations.

Legal Standard for Determining Prima Facie Obviousness

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

“There are three possible sources for a motivation to combine references: the nature of the problem to be solved, the teachings of the prior art, and the knowledge of persons of ordinary skill in the art.” *In re Rouffet*, 149 F.3d 1350, 1357, 47 USPQ2d 1453, 1457-58 (Fed. Cir. 1998) (The combination of the references taught every element of the claimed invention, however without a motivation to combine, a rejection based on a *prima facie* case of obvious was held improper.).

“In determining the propriety of the Patent Office case for obviousness in the first instance, it is necessary to ascertain whether or not the reference teachings would appear to be sufficient for one of ordinary skill in the relevant art having the reference before him to make the proposed substitution, combination, or other modification.” *In re Linter*, 458 F.2d 1013, 1016, 173 USPQ 550, 562 (CCPA 1972).

Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art. “The test for an implicit showing is what the combined teachings, knowledge of one of ordinary skill in the art, and the nature of the problem to be solved as a whole would have suggested to those of ordinary skill in the art.” *In re Kotzab*, 217 F.3d 1365, 1370, 55 USPQ2d 1313, 1317 (Fed. Cir. 2000). See also *In re Lee*, 277 F.3d 1338, 1342-44, 61 USPQ2d 1430, 1433-34 (Fed. Cir. 2002) (discussing the

importance of relying on objective evidence and making specific factual findings with respect to the motivation to combine references); *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

The Supreme Court of the United States has recently held that the teaching, suggestion, motivation test is a valid test for obviousness, but one which cannot be too rigidly applied. See *KSR Int'l Co. v. Teleflex Inc.*, 127 SCt 1727, 82 USPQ2d 1385 (U.S. 2007). The Supreme Court in *KSR Int'l Co. v. Teleflex, Inc.*, *ibid.*, reaffirmed the Graham factors in the determination of obviousness under 35 U.S.C. § 103(a). The four factual inquiries under Graham are:

- (a) determining the scope and contents of the prior art;
- (b) ascertaining the differences between the prior art and the claims in issue;
- (c) resolving the level of ordinary skill in the pertinent art; and
- (d) evaluating evidence of secondary consideration.

Graham v. John Deere, 383 U.S. 1, 17-18, 148 USPQ 459, 467 (U.S. 1966).

The Court in *KSR Int'l Co. v. Teleflex, Inc.*, *supra.*, did not totally reject the use of "teaching, suggestion, or motivation" as a factor in the obviousness analysis. Rather, the Court recognized that a showing of "teaching, suggestion, or motivation" to combine the prior art to meet the claimed subject matter could provide a helpful insight in determining whether the claimed subject matter is obvious under 35 U.S.C. § 103(a).

Even so, the Court in *KSR Int'l Co. v. Teleflex, Inc.*, *ibid.*, rejected a rigid application of the "teaching, suggestion, or motivation" (TSM) test, which required a showing of some teaching, suggestion, or motivation in the prior art that would lead one of ordinary skill in the art

to combine the prior art elements in the manner claimed in the application or patent before holding the claimed subject matter to be obvious.

Accordingly, while the courts have adopted a more flexible teaching, suggestion, motivation (TSM) test in connection with the obviousness standard based on the *KSR v. Teleflex* case, which case involved a mechanical device in a relatively predictable technological area, it remains true that, despite this altered standard, the courts recognize inventors face additional barriers in relatively unpredictable technological areas as noted in *Takeda Chemical Industries, Ltd. v. Alphapharm Pty., Ltd.*, 83 USPQ2d 1169 (Fed. Cir. 2007).

Further, the Examiner bears the initial burden of presenting a *prima facie* case of obviousness. *In re Oetiker*, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). “[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *In re Kahn*, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336, quoted with approval in *KSR Int’l Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1741, 82 USPQ2d 1385, 1396 (2007).

Distinctions Over the Cited Art

As with the above anticipation rejection, each of the outstanding obviousness rejections under 35 USC 103(a) are primarily based on the teachings of Kalopissis et al. US ‘719. However, as noted above Kalopissis et al. US ‘719 no longer overlaps with the instant invention as claimed, and moreover, provides no teaching, disclosure, reason or rationale to those of ordinary skill in the art that would allow them to arrive at the instant invention as recited in each of instantly pending claims.

As such, it follows that the disclosure of Kalopissis et al. US '719, even if combined with the disclosures of the secondary cited references of Vysotskaya et al. and Amanokura et al. fails to render the instant invention as claimed obvious, since the secondary cited art references do not cure the deficiencies of the primary cited art reference of Kalopissis et al. US '719.

For example, Vysotskaya is simply relied on at page 5 of the office action as teaching "the use of a surfactant to increase the crack resistance of an epoxy-rubber material." Similarly, Amanokura et al. is simply relied on at page 5 of the office action as teaching "the use of a surfactant for its development promoting effects of a photosensitive resist material base on a flame-retardant amide-type resin." Neither of these teachings cure the deficiencies found in the cited Kalopissis et al. US '719 patent that are noted above.

Accordingly, the outstanding rejections and objections are no longer sustainable and must be reconsidered at present. Any contentions of the USPTO to the contrary must be re-evaluated at once.

CONCLUSION

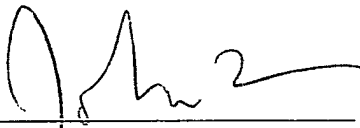
Based upon the amendments and remarks presented herein, the Examiner is respectfully requested to issue a Notice of Allowance clearly indicating that each of pending claims 1-10 and 14-17 are allowed and patentable under the provisions of Title 35 of the United States Code.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact John W. Bailey (Reg. No. 32,881) at the telephone number below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §§1.16 or 1.14; particularly, extension of time fees.

Dated: January 22, 2008

Respectfully submitted,

By 

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